

WHAT IS CLAIMED IS:

1. A catheter comprising;
an elongated tubular member having a proximal end and a distal end;
said tubular member including a passageway
5 extending throughout the length of the tube and forming a wall proximal and distal openings;
a plurality of circumferentially-spaced longitudinally extending slits through said wall adjacent the distal end defining a plurality of circum-
10 ferentially-spaced longitudinally extending flexible intermediate portions of said wall, said flexible intermediate portions capable of forming a plurality of wings extending from said tube to provide for the discharge of fluid from the passageway out through said wall through the open slits defined between said wings.
2. The catheter of claim 1 which is insertable over and includes a guidewire within said passageway.
3. The catheter of claim 2 including a valve normally sealingly closing said distal opening, said valve sealing around said guidewire during the passage of said guidewire through said tube and valve.
4. The catheter of claim 1 including a valve means for at least partially closing said passageway at the distal end of said tube, said valve means comprising a plurality of resilient flaps which flex when acted on
5 by the force of fluid pressure originating within said passageway.

5. The catheter of claim 1 wherein said flexible intermediate portions are normally positioned to form said wings.

6. The catheter of claim 1 further including an external, removable cannula dimensioned to fit over and collapse said tube to its maximum length and minimum width and to compress said wings until they return to a retracted position with said slits in a closed position.

7. The catheter of claim 1 including means for expanding said intermediate portions away from said tube to provide lateral openings for the discharge of fluid from the passageway.

8. The catheter of claim 1 further including at least one restrictor within said passageway for resisting axial flow thereby.

9. The catheter of claim 8 wherein said restrictors comprise at least one protuberance on said wall within said passageway.

10. The catheter of claim 9 wherein said restrictors comprise a plurality of spaced, annular ribs.

11. A catheter comprising;
an elongated tubular member having a proximal end and a distal end;

said tubular member having a thin wall
5 defining a passageway extending throughout the length of the tube and forming proximal and distal openings;

a plurality of circumferentially-spaced longitudinally extending slits through said thin wall

10 adjacent the distal end defining a plurality of circum-
ferentially-spaced longitudinally extending flexible
intermediate portions of said thin wall, adjacent said
slits;

15 said flexible intermediate portions normally
forming a plurality of wings extending from said tube
with open slits therebetween to provide for the dis-
charge of fluid from the passageway through said open
slits in said thin wall near said distal end;

20 an external, removable cannula dimensioned to
fit over and collapse said tube to its maximum length
and minimum width and to compress said wings until they
return to a position with said slits in a closed
position.

12. The catheter of claim 11 which is insert-
able over and includes a guidewire in said passageway.

13. The catheter of claim 12 including a
valve normally sealingly closing said distal end of said
passageway, said valve adapted to seal against passage
of fluid from said passageway through said distal
5 opening during passage of said guidewire through said
tube and valve.

14. The catheter of claim 11 including a
valve means for at least partially closing said distal
opening, said valve means comprised of a plurality of
resilient flaps which will flex when exposed to the
5 force of fluid pressure originating within said passage-
way.

15. The catheter of claim 11 further includ-
ing at least one restrictor within said passageway for
resisting axial flow thereby.

16. The catheter of claim 15 wherein said restrictors comprise at least one protuberance on said wall within said passageway.

17. The catheter of claim 16 wherein said restrictors comprise a plurality of spaced, annular ribs.

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